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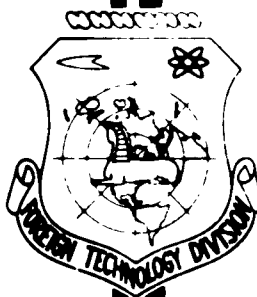
# TRANSLATION

METHOD OF PREVENTING SIGNAL DISTORTIONS  
CAUSED BY MULTIPATH DISTRIBUTION DURING  
METEORIC COMMUNICATION

By

V. V. Sidorov

FOREIGN TECHNOLOGY  
DIVISION



AIR FORCE SYSTEMS COMMAND

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OHIO

## UNEDITED ROUGH DRAFT TRANSLATION

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TION

BY: V. V. Sidorov

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PREPARED BY:

TRANSLATION DIVISION  
FOREIGN TECHNOLOGY DIVISION  
WP-AFB, OHIO.

METHOD OF PREVENTING SIGNAL DISTORTIONS CAUSED BY  
MULTIPATH DISTRIBUTION DURING METEORIC COMMUNICATION

By  
V. V. Sidorov

The known methods of preventing distortions of positions of transmitted radio signals during meteoric communication, are based on the spacing - differential reception and transmission of coded signals, they require broadening of the working frequency band of the radio channel, which makes their realization difficult.

In the described method multipath distribution is revealed by the difference in amplitude time characteristics of meteoric echoes, during dispersed reception over small base, which offers the possibility of obtaining information about signal distortions without expanding the frequency band of the channel and to employ same for the transmission of telegraph signals and during the transmission of broadcasting signals as well.

In conformity with the proposed method the reception of signals, reflected from meteors is realized over dispersed antennas, whereby the base is selected smaller than the first Fresnel zone. The difference in amplitude-time characteristics of meteoric echoes, which originate as result of Doppler displacements of signal components with turbulent displacements of reflecting centers, will be proportional to the angular dimensions of the reflecting zone.

The surpassing of angular dimensions of reflecting zone by a certain fixed

value is fixed when comparing amplitude-time characteristics with the aid of a two-sided amplitude discriminator, placed in the differential channel. The signal, obtained at the output of the discriminator, is used for stopping transmission of information or for reducing the rate of its transmission to a magnitude, at which the angular dimensions of the reflecting zone does not cause distortions in information.

The described method for increasing its effectiveness is recommended during simultaneous prediction of the appearance of a second meteoric reflection, when the previous one has not yet been concluded, by the presence of a Doppler frequency displacement.

The necessary resolving power of the system is obtained by properly selecting the length of the base.

#### Object of Investion.

A method of preventing signal distortions, caused by multipath propagation at meteoric communication, based on scatter-differential reception of signals, characterized by the fact, that to obtain information about distortions without expanding the frequency band of the channel, the fact of multipath propagation is detected by the difference in amplitude-time characteristics of meteoric echoes at scattered reception over a small base (base smaller than first Fresnel zone).

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